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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,475	02/12/2002	Susana Salceda	DEX-0313	7335

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EXAMINER	
SMITH, CAROLYN L	
ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/074,475	SALCEDA ET AL.	
	Examiner	Art Unit	
	Carolyn L Smith	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *6 and 9-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7 and 8* is/are rejected.

7)☒ Claim(s) *1-5,7 and 8* is/are objected to.

8)☒ Claim(s) *1-17* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *See Continuation Sheet* .

Continuation of Attachment(s) 6). Other: Sequence Match Listing (5 pages).

DETAILED ACTION

Applicants' elections with traverse of Group I (claims 1-5, 7, and 8) and of SEQ ID NO: 156 (encoding SEQ ID NO: 285), filed 8/15/2003, are acknowledged. Claims 6 and 9-17 are withdrawn from consideration as being drawn to non-elected Groups.

Applicants' traversal is on the grounds that the Examiner stated the Groups were distinct because they are independent, that two criteria (independence or distinctness and search burden) must be met for restriction to be proper, and that an election of more than a single nucleic acid sequence should be permitted.

The applicants' arguments regarding distinctness/independence, the request to combine Groups I-VIII into one invention, and the request for an election of more than one nucleic acid sequence were found unpersuasive because of the following reasons (partially summarized from the restriction paper where appropriate):

The Examiner maintains that it is adequate to prove Groups are distinct because they are independent. Independent inventions are unrelated such that they are unconnected in design, operation, and effect. Therefore, by definition, independent inventions are inherently distinct.

The reasoning to combine all Groups is found unpersuasive as the Groups (and the additional species) were considered independent and/or distinct due to the critical limitations set forth on page 6 (previous Office action) and the appropriate restricting criteria due to being related as products and processes of use as set forth on page 6, last paragraph to page 8, first paragraph (previous Office action). Again, the subject matter is often separately characterized

and published in literature creating a lack of overlapping searches, thus adding to the search burden if all Groups and species were examined together.

The request for multiple sequences to be searched is found unpersuasive. Due to the number of sequence requests made, it is practically impossible to accommodate all of these requests. The overwhelming number of sequences poses undue search burden when more than one nucleic acid sequence is elected.

The requirements are still deemed proper and are therefore made FINAL.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The present title is directed to compositions and methods relating to breast specific genes and proteins, whereas in contrast the elected claims are specifically directed to a nucleic acid, vector and host cell.

Claims herein under examination are 1-5, 7, and 8.

Specification

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code, such as on page 51, line 5, and elsewhere. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Objections

Claim 1 is objected to due to the inclusion of subject matter which has been non-elected due to a restriction requirement and therefore withdrawn from consideration. Claims 2-5, 7, and

8 are also objected to due to their direct or indirect dependency from claim 1. The non-elected subject matter in claim 1 is summarized as follows: Claim 1 is directed to including non-elected sequences. Correction is suggested by stating only the subject matter (SEQ ID NO: 156 which encodes SEQ ID NO: 285) that is part of the instant invention.

PATENTABLE UTILITY GUIDELINES

The pending claims have been reviewed in light of the Utility Examination Guidelines and Guidelines for Examination of Patent Applications under 35 U.S.C. 112, first paragraph, "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1092-1111, Friday, January 5, 2001.

The examiner is using the following definitions in evaluating the claims for utility.

"Specific" - A utility that is *specific* to the subject matter claimed. This contrasts with a *general* utility that would be applicable to the broad class of the invention.

"Substantial" - A utility that defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utilities.

"Credible" - Credibility is assessed from the perspective of one of ordinary skill in the art in view of the disclosure and any other evidence of record that is probative of the applicant's assertions. That is, the assertion is an inherently unbelievable undertaking or involves implausible scientific principles.

"Well-established" - a specific, substantial, and credible utility which is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art.

Claims Rejected Under 35 U.S.C. § 101

35 U.S.C. § 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 1-5, 7, and 8 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility due to its not being supported by a specific, substantial, and credible utility or, in the alternative, a well-established utility.

The critical limitation of claims 1-5, 7, and 8 is the nucleotide sequence of the claimed nucleic acids, vector and host cell, SEQ ID NO: 156. The claimed nucleic acid, vector, and host cell are not supported by a specific utility, because the disclosed uses of these compositions are not specific and are generally applicable to the breast specific polynucleotides. The specification states the polynucleotides can be used in diagnostic methods (pages 89 and 93) and monitoring breast cancer in patients (page 95). The specification summarizes general sequence uses in modern biotechnology (i.e. making pharmaceutical compositions (page 99)), but never connects the specifically elected sequence (SEQ ID NO: 156) to any particular or available utility. The above-mentioned list of possible utilities for the claimed sequence falls short of a readily available utility. These are non-specific uses that are applicable to many polynucleotides, vectors and host cells, and are not particular or specific to the polynucleotides, vectors, and host cells being claimed.

Further, these claimed polynucleotides, vectors, and host cells are not supported by a substantial utility, because no substantial utility has been established for the claimed subject matter. SEQ ID NO: 156 may indeed be a sequence found in cancerous breast tissue; however, this allegation does not adequately define a "real world" context of use. For example, basing

gene expression analysis solely on Expressionist software program from GeneData Inc. (page 114) does not immediately identify a real world use. While applicants have described applying Expressionist software program to propose allegations of sequences being associated with a particular type of cancer, such assertions appear to be merely allegations without support based on scientific facts. For example, it is unknown what criteria or parameters are relied upon by the Expressionist program to create these allegations and if these criteria or parameters are based on sound scientific reasoning. Therefore, the claimed polynucleotides, vectors, and host cells lack a substantial utility as these products are supported only by allegations which do not support a readily available use.

Applicant should explicitly identify a specific, substantial, and credible utility for the claimed invention and establish a probative relation between any evidence of record and the originally disclosed properties of the claimed invention.

Due to a lack of either an art recognized or alleged well established utility, the instant invention has been rejected due to also lacking the required combination of a specific, substantial, and credible utility. Although it may be credible that the polynucleotide of SEQ ID NO: 156 is only differentially expressed in cancerous breast tissue which may have substantial utility, the lack of a specific utility, as explained above, sufficiently supports this rejection.

Claim Rejections – 35 U.S.C. 112, first paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in *Ex parte Forman*, 230 USPQ 546 (BPAI 1986) and reiterated by the Court of Appeals in *In re Wands*, 8 USPQ2d 1400 at 1404 (CAFC 1988). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. The Board also stated that although the level of the skill in molecular biology is high, the results of experiments in genetic engineering are unpredictable. While all of these factors are considered, a sufficient amount for a *prima facie* case are discussed below.

LACK OF ENABLEMENT

Claims 1-5, 7, and 8 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the claimed invention.

Without further data or sound scientific reasoning, it appears speculative whether the polynucleotide of SEQ ID NO: 156 plays a role in any of the asserted utilities as discussed above in the 35 U.S.C. § 101 rejection. Several options exist to overcome this lack of enablement issue, such as supplying additional data or other scientific reasoning that would lead one of ordinary skill in the art to be able to make and/or use the present invention.

Since the claimed invention is not supported by a specific, substantial, and credible utility or a well-established utility for the reasons set forth above (refer to the 35 U.S.C. § 101 rejection), one skilled in the art would not know how to use the claimed invention.

LACK OF WRITTEN DESCRIPTION

Claims 1-5, 7, and 8 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time of the invention was filed, had possession of the claimed invention.

The specification discloses SEQ ID NO: 156 which corresponds to a nucleic acid sequence. SEQ ID NO: 156 and its full complement meet the written description provisions of 35 U.S.C. 112, first paragraph. However, claims 1-5, 7, and 8 are directed to encompass sequences that hybridize to SEQ ID NO: 156 and sequences having a recited degree of sequence identity which do not meet the written description provision of 35 U.S.C. 112, first paragraph. Please note the "60% sequence identity" as recited in claim 1 (line 8), could also contain sequences including the entire sequence of SEQ ID NO: 156 plus up to 40% of additional sequence on either end of SEQ ID NO: 156 which fails to meet the written description provision of 35 U.S.C. 112, first paragraph. Due to the open claim wording of "comprising" in claim 1, this claim is directed to encompass gene sequences that do not meet the written description provision of 35 U.S.C. 112, first paragraph. The specification provides insufficient written description to support the genus encompassed by these claims.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in

possession *of the invention.* The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.)

With the exception of SEQ ID NO: 156, the skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides and/or proteins, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The nucleic acid itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai Pharmacentical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

...To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc.* , 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); *In re Gosteli* , 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood* , 107 F.3d at 1572, 41 USPQ2d at 1966.

Therefore, only SEQ ID NO: 156 and its full length complement, but not the full breadth of the claims, meet the written description provision of 35 USC 112, first paragraph. The species specifically disclosed are not representative of the genus because the genus is highly variant. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision. (See page 1115.)

Claims Rejected Under 35 U.S.C. § 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5, 7, and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claim 1 (line 6) recites the phrase "selectively hybridizes" which is vague and indefinite. It is unclear which hybridizing criteria such as stringency conditions (i.e. buffers, pH of buffer, etc.) or whether low, medium, or high stringency is meant. Applicants can resolve this issue by particularly pointing out the stringent conditions that are intended to allow the polynucleotide to hybridize. Clarification of the metes and bounds of the instant claims is required. Claims 2-5, 7, and 8 are also rejected due to their direct or indirect dependence from claim 1.

Claims 2-5 and 8 recite the phrase "according to" which is vague and indefinite. It is unclear to what extent the "according to" must be followed. Clarification of the metes and bounds of the instant claims is requested.

Claim Rejections – 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(a) as being anticipated by Genbank (Accession Number AF219946).

GenBank discloses a *homo sapiens* mRNA sequence (Accession Number AF219946, residues 1358-5989) that has 100% similarity to SEQ ID NO: 156 (residues 1-4632). Thus, GenBank anticipates the limitations in claims 1, 4, and 5.

Claims 1-5, 7, and 8 are rejected under 35 U.S.C. 102(e)(2) as being anticipated by Tang et al (P/N 6,436,703 B1).

As the word "hybridizes" in claim 1 (line 6) encompasses fragments, Tang et al. disclose human gene fragment (SEQ ID NO: 9, residues 864-882) which matches 100% with fragment of SEQ ID NO: 156 (residues 3062-3080) of the instant invention. Tang et al. disclose nucleic acids which hybridize to SEQ ID NO: 9 (col. 2, lines 11-22 and col. 11, lines 48-67). Tang et al. disclose vectors, using SEQ ID NO: 9 that can be used to express a gene in a host cell (col. 2, lines 40-44 and lines 64-67 to col. 3, lines 1-33). Tang et al. disclose obtaining polynucleotides of their invention from mammalian cells, either genomic or cDNA (col. 12, lines 8-12 and col. 66, lines 41-45). Thus, Tang et al. anticipate the limitations in claims 1-5, 7, and 8.

Conclusion

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located

in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The CM1 Fax Center number is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (703) 308-6043. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached on (703) 308-4028.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instruments Examiner Tina Plunkett whose telephone number is (703) 305-3524 or to the Technical Center receptionist whose telephone number is (703) 308-0196.

October 1, 2003

ARDIN H. MARSCHEL
PRIMARY EXAMINER